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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,400	03/31/2000	Frans Lodewijk Plantenga	ACH2696	2198

7590 07/07/2003

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EXAMINER

NORTON, NADINE GEORGIANNA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/07/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant No.

09/540,400

Applicant(s)

ALEANDROVICH ET AL.

Examiner

Nadine Norton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 5-12-03 has been entered.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al.(5,468,709).

Applicants are claiming a process for reducing the sulfur content of a hydrocarbon feedstock to a value less than 200ppm. Applicants' process comprises contacting the feed with a

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catalyst comprising a Group VIII metal, a Group VIB metal and an organic additive on a carrier.

The dependent claims define specific organic additives.

The reference of Yamaguchi et al.(5,468,709) discloses a catalyst suitable for desulfurizing a hydrocarbon feed containing sulfur. See column 47, lines 45-55. The catalyst comprises a group VIII metal (nickel or cobalt), a Group VIB meal (molybdenum), an additive and a support. See column 4, lines 1-15 and 45-62. The reference teaches that suitable additives include ethylene glycol or a polysaccharide. See column 4, lines 50-54 and column 6, lines 12-24. Yamaguchi et al.(5,468,709) also discloses that the catalyst can be presulfided in situ. See column 9, lines 55-65.

The reference of Yamaguchi et al.(5,468,709) succeeds in teaching the use of a catalyst for desulfurization of an oil with components corresponding to those claimed by applicants.

Several differences are noted between the reference of Yamaguchi et al.(5,468,709) and applicants' claimed invention. It is noted that the reference is silent about limiting the feed boiling point and sulfur content.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to treat any sulfur containing feed, including a feed with the specific boiling point and sulfur content claimed by applicants, by the process of Yamaguchi et al.(5,468,709) because it does not limit the specific types of sulfur containing oils. In the absence of unexpected results, it would appear that one of ordinary skill would be motivated to treat any oil with an undesirable level of sulfur according to the process of Yamaguchi et al.(5,468,709), including a feed with the sulfur contents in applicants' claims, since it is known to be effective for removing undesirable

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sulfur. Treatment of applicants' specific oil (with specific starting sulfur amounts) would yield a product with a sulfur content as defined in applicants' claims.

In addition, it is noted that the reference is silent about a second desulfurization step as defined in applicants' claim 8. However, applicants' second desulfurization step is considered to be a repetition of the first desulfurization of the first. It would have been obvious to one of ordinary skill in the art at the time the invention was made to repeat the desulfurization step of Yamaguchi et al.(5,468,709) because it is within the level of ordinary skill in the art to repeat a known processing step until a desired sulfur removal level is obtained.

#### ***Claim Rejections - 35 USC § 103***

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over (EP 0 870 817 A1) in view of Yamaguchi et al.(5,468,709).

The reference of (EP 0 870 817 A1) discloses a two stage desulfurization process for hydrocarbon feedstock with a 95% boiling point of 450°C or less. See abstract, column 1, line 4. The catalyst comprises group VI and VIII metals (e.g. nickel, cobalt, molybdenum). See page 2, lines 6-8 and 45-50. The catalyst can be employed in sulfided form (can be sulfided in situ). See page 2, lines 55-60. The process can involve two hydrogenation steps. See abstract, column 2, paragraph 2. The final product comprises less than 350 ppm sulfur.

The reference of (EP 0 870 817 A1) succeeds in disclosing a desulfurization process with steps, a feed, and a group VI/VIII catalyst sulfided catalyst corresponding to those claimed by applicants.

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A difference is noted between the process of (EP 0 870 817 A1) and applicants' claimed invention. The reference does not disclose the use of applicants' claimed additives.

The reference of Yamaguchi et al.(5,468,709) is cited for the general teaching that applicants' claimed additives are known to increase the activity of Group VIII/IV desulfurization catalysts. See abstract and column 6, lines 10-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the group VIII/VI catalyst of (EP 0 870 817 A1) to include the additives defined in applicants' present claims because the reference of Yamaguchi et al.(5,468,709) illustrates that such additives are known to increase the activity of group VIII/VI desulfurization catalysts. One of ordinary skill in the art desiring increased desulfurization would be motivated to include applicants' additives.

### ***Response to Arguments***

Applicants' arguments filed 5-12-03 have been fully considered but they are not persuasive.

Applicants' arguments asserting that applicants' claims distinguish over the teachings of Yamaguchi et al.(5,468,709) because the reference gives no hint of a feed containing less than 500 ppm of sulfur are not persuasive in overcoming the rejection. In response, it is maintained that the reference does not specifically limit the content of sulfur in the feeds which are suitable for use in the disclosed process. As a result, one of ordinary skill in the art would be motivated to process any feed containing undesirable sulfur according to the process of Yamaguchi et al.(5,468,709), including a feed containing less than 500 ppm sulfur and boiling in applicants' claimed range. It is maintained that treatment of applicants' specific oil according to the process

of Yamaguchi et al.(5,468,709) would yield a product with a sulfur content as defined in applicants' claims.

Applicants' 1.132 declaration (filed 5-12-03) is not considered to distinguish applicants' claims over the closest prior art of Yamaguchi et al.(5,468,709) because it is not commensurate in scope with the claims. For instance, applicants' claims require the sulfur content of the feed to be below 500 ppm sulfur. The examples in the declaration are for feeds containing greater than 500 ppm sulfur. In addition, the results reported in the declaration are achieved with specific process conditions. Such conditions are not defined in applicants' claims. As a result, the claims are not commensurate. Furthermore, applicants' MoNi combination is considered to be suggested by the reference of Yamaguchi et al.(5,468,709) at column 4, lines 1-7.

Applicants' arguments directed at the improper combination of Yamaguchi et al.(5,468,709) and (EP 0 870 817 A1) are not persuasive. In response, it is maintained that the combination of references is proper. One of ordinary skill would be motivated to modify the Group VIII/IV metal containing composition of (EP 0 870 817 A1) with applicants' specific organic additives because the reference of Yamaguchi et al.(5,468,709) teaches that it is known that the activity of Group VIII/IV desulfurization catalysts are increased with organic additives.

Applicants also appear to argue that in order to combine references one would have to disregard the cobalt component of Yamaguchi et al.(5,468,709). In response, it is maintained that Yamaguchi et al.(5,468,709) teaches the effect of organic additives regardless of whether cobalt is the selected group VIII metal. Yamaguchi et al.(5,468,709) is also applicable when nickel is selected as the desired VIII metal. Also, arguments with respect to cobalt do not

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distinguish the pending claims because cobalt is not excluded by applicants' claims and cobalt is not required by the applied art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadine Norton whose telephone number is 703-305-2667. The examiner can normally be reached on Monday through Thursday from 8:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

N.N.

July 6, 2003

NADINE G. NORTON  
PRIMARY EXAMINER

